

REMARKS/ARGUMENTS

At the outset, Applicant notes with appreciation that Claim 7 would be allowable if placed in proper *independent form*.

Claims 1-6, 8, 38 and 39 stand rejected as obvious over U.S. Patent 6,226,855 (Maine) in view of U.S. Patent 4,357,745 (Chlebowski). The rejection is respectfully traversed. Claim 1 has been amended to recite that the method claimed therein produces a plastic-lined conduit for use in offshore oil and gas operation, which is capable of withstanding corrosion and elevated pressures. Vis-à-vis this limitation, the Chlebowski reference falls short of curing the infirmity of Maine.

To begin with, Chlebowski does not make any mention of the end use of the lined pipe produced by the method of Chlebowski. However, as will be seen hereafter, one of skilled in the art would not deem it acceptable for use in offshore application in the oil and gas industry. Attached herewith is the Declaration of Dr. Jean Francois Saint-Marcoux. As stated in Dr. Saint-Marcoux's Declaration, the present invention, as now clearly set forth in amended Claim 1, is directed to applications in the offshore oil and gas industry and, more specifically, to the production of plastic lined conduits which have a high level of strength and integrity to accommodate the fact that in this environment, high pressures are typically encountered. While Dr. Saint-Marcoux recognizes that the Maine reference is relevant to the present invention, Dr. Saint-Marcoux, as can be seen from his Declaration, states that the skilled artisan looking to cure the infirmities of Maine to arrive at the present invention,

would not look to the teachings of Chlebowski. In particular, the Declaration points out that not only does Chlebowski not disclose the end use to which the lined conduits are directed, the skilled artisan would readily recognize that the conduits would only have application in relatively low pressure applications where fluid containment is not a primary concern. As noted in the Declaration, loss of containment of either hydrocarbons or injected water in offshore applications is not an option because of, at least, environment problems. Hydrocarbons and/or aqueous streams containing chemical additives cannot be released into the ocean without potential ecological damage.

Furthermore, the Declaration points out that Chlebowski contains apertures 13 and 20, through which casting resin is injected into the annular space between the sleeve 15 and the pipes 10, 17. These apertures 13, 20 are subsequently closed by plugs, which make the Chlebowski structures unsuitable for use in high pressure environments. As noted in the Declaration, the interface between the linings 11, 18 and the ends sleeve 15 are not physically sealed and simply relying on casting resin into the thin annulus between the sleeve and the pipes 10, 17 is likely to be unreliable in curing that defect. Additionally, as would be well understood by those of skill in the art, the apertures 13 and 20 introduce points of weakness; e.g., stress risers, into the metal of the pipes. Indeed, as Chlebowski points out in column 3, lines 19-21 and as noted in the Declaration, in an attempt to solve this problem, the area of the pipe around the apertures can be strengthened; e.g., thickened by welding on additional material. Not only is this a time consuming step, in all likelihood, it would not eliminate stress riser

from forming. Furthermore, as pointed out in the Declaration, resorting to this reinforcing method of Chlebowski with respect to the apertures would lead to non-uniform rigidity and the aforementioned stress concentrations in the conduit.

Dr. Saint-Marcoux also points out that in Chlebowski, at the joint of the tube pipes, pressure within the pipe bore is restrained only by a thickness of polyurethane and a pair of screwed plugs. Accordingly, as pointed out in the Declaration, the skilled artisan would not look to the Chlebowski method as a means to cure the infirmity of Maine. In short, Dr. Saint-Marcoux states, in paragraph 11 of the Declaration, that the skilled artisan would not combine Chlebowski with Maine since the Chlebowski reference would not be considered relevant in the field of offshore conduits, where high pressures are experienced.

New Claim 40 now sets forth that the metal walls of the conduits overlaying the unlined portions adjacent at the ends thereof do not have any apertures thereby eliminating stress concentrations which are present in Chlebowski.

* New Claim 41 calls for the bridging piece to have a substantially uniform wall thickness. While Chlebowski discloses that sleeve 15 has a generally uniform wall thickness, to substitute the sleeve of Chlebowski for the bridging member 2 of Maine, flies in the face of the express teaching of the Maine reference. Maine discloses two types of bridging members, as depicted in Figs. 2 and 4. In both cases, the bridging member either contains a central section 8, which has a wall thickness, which is much greater than the wall thickness of the remaining sections of the bridging member or, as in Fig. 4, is provided with a ring

30 which effectively increases the wall thickness of the bridging member 2 to substantially what is shown in Fig. 2. Nor is there any suggestion in Maine, that the intermediate portion 8 or the combination of the intermediate section 8 with the ring 30 can be eliminated.

In point of fact, the intermediate section of the bridging member 2 of Maine must have increased thickness, since the tool 26 apparently is only capable of expanding the tubular end portions 4 into the liners, but cannot expand the intermediate section of the bridging member into the gap between the ends of the liner adjacent to joint of the metal walls. For example, by comparing Figs. 2 and 3, it can be seen that the intermediate portion 8 has an OD which is substantially the same as the ID of the unlined sections of the pipe 16. In other words, using the tool 26 of Maine, if the intermediate portion 8 of the bridging member 2 did not have the increased OD, there would be an annular gap between the wall of the pipe 16, 16A and the bridging member 2. Thus, the Chlebowski sleeve 15, albeit of uniform wall thickness, is unsuitable in the method of Maine. To highlight this difference, new Claim 42 sets forth that when the bridging member is expanded, the intermediate portion is forced into the gap between the ends of the plastic liners in the first and second conduits. In Maine, there effectively is no gap between the ends of the liners 18 and 18A because when the bridging piece 2 is positioned, the portion 8 effectively fills in any gap or space between the ends of the liners 18, 18A.

There is absolutely no way to combine the teachings of Chlebowski with Maine absent a foray into hindsight analysis, which the Supreme Court expressly

forbid in KSR. Indeed, it is only by using Applicant's "recipe" that the skilled artisan could even contemplate combining the references. As noted above, and as substantiated by the Declaration of Dr. Saint-Marcoux, the Chlebowski reference is unsuited for use in the field to which the plastic-like conduits of the present invention are directed, wherein high pressures are encountered because of the stress concentrations created by the apertures 13, 20 of Chlebowski. Furthermore, Chlebowski does not contemplate the respective ends of the bridging member providing any sealing relationship between the sleeve 15 and the respective ends of the lining 18. Indeed, to accomplish sealing, Chlebowski necessarily relies on filling the annulus between the sleeve and the metal conduits with some sort of curable organic liquid material. Thus, Chlebowski differs dramatically from Maine in that, whereas in Maine, the end portions 4 of the bridging member 2 are sealed against the lining 18 by virtue of radial expansion of the end portions 4 into the lining 18, in Chlebowski, that type of sealing is clearly not contemplated, Chlebowski, as pointed out above, relies on the curable urethane or similar material to effect such sealing. In this regard, it should be noted that without the curable material, the Chlebowski method could not ensure that fluids passing through the conduit would not contact the metal wall, since in effect, there would be no sealing between the sleeve 15 and the conduits or pipes 10, 17. In short, to attempt to modify Maine using Chlebowski to arrive at Applicant's claimed invention, the express teachings of Maine must be ignored, and the teachings of Chlebowski distorted, unless the skilled artisan is provided with Applicant's disclosure on how such a combination could be

made workable to provide a lined conduit usable in high pressure applications in offshore oil and gas operations. It is respectfully submitted that the combination of Chlebowski with Maine does not make out a *prima facie* case of obviousness, vis-à-vis Claim 1.

With respect to Claim 2, neither Chlebowski nor Maine discloses a process wherein the sleeve is, or for that matter ever could be, introduced into the joint after the pipes are positioned adjacent to one another for joining. Accordingly, Claim 2 is clearly patentable over the combination of Maine and Chlebowski.

It is also respectfully submitted that Claim 6 is independently patentable. Neither Chlebowski nor Maine discloses a process in which the sleeve is swaged radially outward in its intermediate portion. Indeed, that is precisely why Maine must have a center portion 8 of the type shown either in Figs. 2 or 4, since Maine does not contemplate swaging or for that matter, any significant radially outward expansion of the center portion 8 from the bridging member 2. See the remarks above regarding new Claim 42.

In view of the foregoing amendments, the Declaration of Dr. Saint-Marcoux and the foregoing remarks, it is respectfully submitted that all claims are in condition for allowance which is hereby earnestly solicited and respectfully requested.

Respectfully submitted,

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